

17. Narrate the computer applications in fermentation Technology.
18. Explain in detail about the methods of biomass operation.
19. Discuss in detail about design and layout of sterile manufacturing unit.
20. Describe in detail about this ISI, ISO, BIS and WHO.

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**23PMB33 — FERMENTATION
TECHNOLOGY AND PHARMACEUTICAL
MICROBIOLOGY**

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define inoculum and its role in fermentation.

2. What is the difference between primary and secondary metabolites?

3. Define the mass transfer coefficient (kLa).

4. What is the purpose of computer applications in fermentation?

5. Define solvent extraction in downstream processing.

6. Differentiate between intracellular and extracellular products.

7. Define contamination in the context of pharmaceutical products.
8. Name two methods used for sterilizing pharmaceutical equipment.
9. What is the purpose of final-product control in pharmaceuticals?
10. How do antibiotics like metronidazole work?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) State the development of inoculum for fermentation process.

Or

- (b) Briefly explain the various stages of upstream process.

12. (a) Illustrate the design types of basic fermenter.

Or

- (b) State the economics status of the fermentation Technology.

13. (a) Write a short note on (i) filtration (ii) flocculation.

Or

- (b) Application of reverse Osmosis in downstream process.

14. (a) Explain impact of microorganisms on pharmaceutical workers.

Or

- (b) Describe in detail about contamination and spoilage of pharmaceutical products.

15. (a) Briefly explain the production of penicillin.

Or

- (b) State the steps involved enzymes production

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe in detail about screening, preservation and improvement of industrially important strains.